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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, LONG T	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/648,603	CHUN, KI-CHUL	
	Examin r	Art Unit	
	Long Nguyen	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10* is/are rejected.

7)☒ Claim(s) *9,11 and 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/15/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on line 13 of page 5, "ialways" should be changed to --always--. Appropriate correction is required.

Claim Objections

2. Claims 1-12 are objected to because of the following informalities:

Claim 1, line 2, "capable of" is not a positive recitation of the claim, so it is suggest "capable of" to be changed to --for--.

Claim 1, line 9, "drive" should be changed to --driver--.

Claims 2-8 are objected to because they include the informality of claim 1.

Claim 2, line 1, "the voltage" should be changed to --the reference voltage--.

Claim 2, line 2, "resistances" needs to be changed to either –resistors-- or --resistance elements--.

Claim 3, line 1, "drive" should be changed to --drive circuit--.

Claim 3, lines 3, 5, 7 and 9, it is suggest "capable of" to be changed to --for--.

Claim 7, line 1, "drive" should be changed to --driver--.

Claim 9, lines 2, 3, and 4, "resistance" should be changed to --resistor-- or --resistance element--.

Claim 10, lines 2, 3, and 4, "resistance" should be changed to --resistor-- or --resistance element--.

Claim 10, lines 15 and 16, "resistance" should be changed to --resistance element--.

Claim 11, line 1, "resistances" should be changed to --resistance elements--.

Claim 12, line 1, "resistances" should be changed to --resistance elements--.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, "resistance/diode" on line 6 is indefinite because it is not clear whether "/" means (i.e., "and" or "or"). Further, it is not clear "resistance" in the above phrase refers to resistance value, resistance element, or resistor. Note that the same problem also exists in claims 4 and 6.

Also in claim 1, "pull-up/down" on line 6 is indefinite because it is not clear whether "/" means (i.e., "and" or "or"). Note that the same problem also exists in claim 7.

Claims 2-8 are indefinite because they include the indefiniteness of claim 1.

Also, in claim 4, "connected, in turn" on line 2 is indefinite because it is not understood what "connected, in turn" means.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kondo et al. (US 2002/0075067).

Insofar as understood in claims 1-3 and 8, Figure 4 discloses a circuit, which includes: a voltage generator (R1, R2) for generating first (VA) and second (VB) reference voltages; a differential amplification drive circuit (AMP1, AMP2, Q4, Q5) generating an output voltage (VBP), wherein the amplification drive circuit including a first differential amplifier (AMP2), a second differential amplifier (AMP1), a first drive transistor (Q4), and a second drive transistor (Q5); another reference voltage generator (R3, R4) for generating third (VC) and fourth (junction of R4A and R41) reference voltages; and a driver (AMP3, Q6). Note that the driver (AMP3, Q6) changes the output (VBP) responsive to the third (VC) and fourth (junction of R4A and R41) reference voltages because the voltage VC depending on the voltage at the junction of R4A and R41.

7. Claims 1, 2, 7 and 8 are also rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al. (USP 5,831,472).

Insofar as understood in claims 1, 2, 7 and 8, Figure 5 discloses a circuit, which includes: a voltage generator (R1, R2) for generating first (junction R1 and R2) and second (junction R2 and R3) reference voltages; a differential amplification drive circuit (82, 84, 106, 114, 105, 112) generating an output voltage (102); another reference voltage generator (R3-R5, 86, 88) for generating third (output of 86) and fourth (output 88) reference voltages; and a driver (103, 104, 108, 110) including a plurality of serially connected transistors (103 series with104, and 108 series with 110) connected to the output voltage (102).

8. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Eto et al. (USP 6,201,378).

With respect to claim 10, Figure 10 of the Eto et al. reference discloses a circuit, which includes: a first resistor (6, Figure 11), a second resistor (7, Figure 11), a third resistor (8, Figure 11), power terminal (internal power supply voltage Vint which also is Vcc, see line 31 of Col. 2, and lines 11-12 of Col. 5), a first differential amplifier (40a), a second differential amplifier (40b), a first pMOS transistor (23a), a first nMOS transistor (23b), a fourth resistor (3b), a fifth resistor (5b). Note the first and second differential amplifiers connected to the output terminal (N22) by way of resistor 4b; and because the supply Vint is the same as Vcc as discussed above, so the pMOS (23a) is also connected to the power supply terminal.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Wang et al. (USP 5,831,472) in view of Anami (USP 4,633,192).

With respect to claims 4 and 5, Figure 5 of the Wang et al. reference discloses a circuit which meets all the limitation of this claim except for disclosing the detail of amplifiers (which therefore does not disclose that the resistance/diode reference voltage generator (i.e., the another reference voltage generator) includes a plurality of serially connected transistors between a voltage source and ground). However, the Anami reference discloses an amplifier (Figure 4)

includes a plurality of serially connected transistors (11 series with 12, and 13 series with 14) connected between a power supply voltage (Vcc) and ground. Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify the circuit in Figure 5 of the Wang et al. reference by using a specific amplifier as taught in Figure 4 of the Anami reference for each broad amplifier (82, 84, 86, 88) in Figure 5 of Wang et al. because the amplifier of Anami has the advantage of low power consumption (see lines 14-16 of Col. 2 of Anami) and therefore the overall power consumption of the circuitry would be reduced. Thus, this modification/combination meets the language of claims 4 and 5 that the another reference voltage generator (86, 88, R3-R5) includes a plurality of serially connected MOS transistors between a voltage source and ground.

With respect to claim 6, it is inherent that the another voltage generator generates the third and fourth reference voltages according to a size of the serially connected MOS transistors because in a circuit, the operation of the circuit depends on the size of the transistors forming such circuit.

Allowable Subject Matter

11. Claim 9 would be allowed if amend to overcome the informalities set forth above.

Claim 9 would be allowed because the prior art of record fails to disclose or suggest that the voltage generator includes first to third resistance elements, first and second differential amplifiers, first to fourth nMOS transistors, and first to fourth pMOS transistors with the recited connections and operations set forth therein.

12. Claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and if amend to overcome the informalities set forth above.

Claims 11 and 12 would be allowed because the prior fails to disclose or suggest that the fourth and fifth resistance elements are N-type MOS diodes (claim 11), and P-type MOS diodes (claim 12).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directly to Examiner Long Nguyen whose telephone number is (571) 272-1753. The Examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached at (571) 272-1740. The fax number for this group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 19, 2004

Long Nguyen
Primary Examiner
Art Unit: 2816